



# Methods, Tools and Data Integrating Discussion

Dean S. Hartley III

HARTLEY CONSULTING, USA

## Report Documentation Page

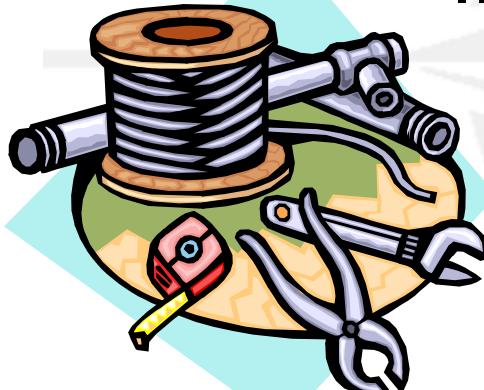
*Form Approved  
OMB No. 0704-0188*

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE <b>00 DEC 2003</b>	2. REPORT TYPE <b>N/A</b>	3. DATES COVERED <b>-</b>		
4. TITLE AND SUBTITLE <b>Integrating Discussion on "Methods, Tools and Data"</b>		5a. CONTRACT NUMBER		
		5b. GRANT NUMBER		
		5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)		5d. PROJECT NUMBER		
		5e. TASK NUMBER		
		5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Hartley Consulting 106 Windsong Ln Oak Ridge, TN 37830 USA</b>		8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)		
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>				
13. SUPPLEMENTARY NOTES <b>See also ADM001657., The original document contains color images.</b>				
14. ABSTRACT				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:		17. LIMITATION OF ABSTRACT <b>UU</b>	18. NUMBER OF PAGES <b>7</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>			

# Models, Tools & Data

- ...come in many forms
- ...have multiple uses
- ...may not fit your problem exactly
- ...are means to an end
- ...not ends themselves





## Review Points

- Tools may be used in problem formulation, as well as in problem solution
- Tools include methods of thought, as well as computer programs
- The model describes what things are connected and how they are connected
- A tool may allow you to build a model or it may implement a model in a usable way



## Review Points

- Try to use the right tool for a given purpose; but, if you have to use a hammer to drive a screw, understand and document the misfit.
- Complex problems usually require linkages of tools. Document the linkages.
- C2 problems are usually complex.
- OOTW problems are usually complex.
- Implies...



## Review Points

- C2 + OOTW problems normally require consideration of human issues...check models, tools & data for applicability
- Deterministic tools yield a point estimate. This is fine where there is no uncertainty in the data, the methodology, or the problem. Otherwise, some method for estimating the variability of results is required.

## Integrating Discussion on “Methods, Tools and Data”

**Dr. D.S. Hartley III**

Hartley Consulting  
106 Windsong Ln  
Oak Ridge, TN 37830  
USA

[DSHartley3@comcast.net](mailto:DSHartley3@comcast.net)

*This paper was received as a PowerPoint presentation without supporting text.*

*Paper presented at the RTO SAS Symposium on “Analysis of the Military Effectiveness of Future C2 Concepts and Systems”, held at NC3A, The Hague, The Netherlands, 23-25 April 2002, and published in RTO-MP-117.*

**This page has been deliberately left blank**

---

**Page intentionnellement blanche**